

City of Bellevue Development Services Department Land Use Staff Report

Prop	osal	Name:
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Forest Hills Water Main Rehabilitation

Proposal Address:

5399 142nd Ave SE

Proposal Description:

Land Use review of a Critical Areas Land Use Permit for the City of Bellevue Utilities Department to replace 700 linear feet of existing 12-inch diameter water main that connects to the Forest Hills reservoir facility. The water main replacement will be bored under the stream to avoid it, but the project will temporarily disturb stream buffer, a steep slope critical area, and the buffer and setback from the steep slope in the Forest

Park Open Space.

File Number:

19-109149-LO

Applicant:

Abe Santos, City of Bellevue Utilities

Decisions Included:

Critical Areas Land Use Permit

(Process II. 20.30P)

Planner:

Reilly Pittman, Land Use Planner

State Environmental Policy Act

Threshold Determination:

Exempt per WAC 197-11-800(3) and BCC 22.02.032.D

Director's Decision:

Approval with Conditions

Michael A. Brennan, Director Development Services Department

By: "Slice M. Brolle of

Elizabeth Stead, Land Use Director

Application Date:

March 25, 2019

Notice of Application Publication:

April 11, 2019

Decision Publication Date:

May 2, 2019

Appeal Deadline:

May 16, 2019

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Documents in File Referenced in this Report

- 1. Plans
- Project Narrative Memo
 Geotechnical Report
- 4. Arborist Report
- 5. SEPA Checklist, Application Forms and Materials

I. Proposal Description

The City of Bellevue Utilities Department proposes to repair approximately 700 linear feet of existing 12-inch diameter water main that connects the Forest Hills Reservoir facility with an existing pressure reducing valve station within the Forest Park Open Space. The repairs are necessary to prevent a potential break in the water main due to premature corrosion discovered through inspection. The construction method of the replacement is proposed through open cut trenching, except where the water main crosses under a Type-N stream, which is proposed to be installed by boring under the stream to avoid disturbance of the stream. A temporary bridge over the stream is proposed for construction access. The project will also temporarily impact a public trail within the open space that will be restored following construction. The proposed work area is located within a 50-foot stream buffer, 15-foot structure setback from the stream buffer, steep slope critical area, 50-foot top-of-slope buffer, and 75-foot toe-of-slope setback and will cause approximately 17,505 square feet of combined temporary disturbance. The project results in the removal of 15 significant trees that are proposed to be replaced at a ratio of 3:1.

Repair of an existing utility is an allowed use in a critical area per LUC 20.25H.055. However, because the project involves the removal of significant trees, the project requires a Critical Areas Land Use Permit and is subject to performance standards contained in LUC 20.25H.055.C.2 See Figure 1 below for the project alignment and reference document 1 for project plans.

FOREST PARK OPEN SPACE
23274-099024

CANT — BELLEVUE SCHOOL, DIST,
22240-99024

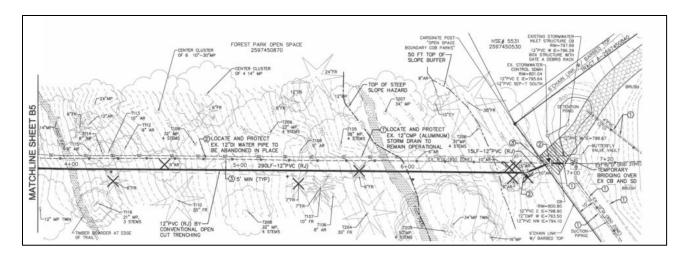
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SO FT STREAM BUFFER

STABLED CONSTRUCTION

STABLED CON



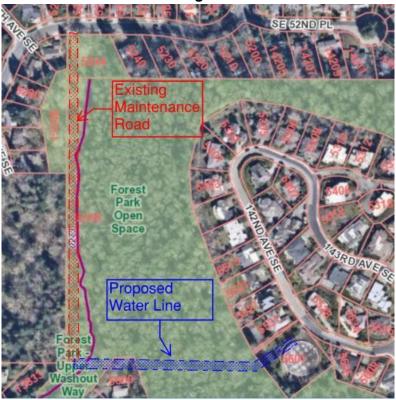
II. Site Description, Zoning, Land Use and Critical Areas

A. Site Description

The project area is generally located in a steeply sloped ravine within a City of Bellevue open space that is owned by the Utilities Department known as the Forest Hills Open Space in the Factoria subarea of Bellevue. This open space extends from SE 52nd St, which is along the north boundary of the open space, to approximately SE 56th St to the south. The Forest Hills reservoir facility is east of and adjacent to this open space, at the top of the steep slope ravine. The work area is located at the southern portion of the open space where there is an existing pressure reduction valve (PRV)??? that connects to the water main running to the east to reach the reservoir. This work area will be accessed via an existing maintenance road that extends from SE 52nd St to the pressure valve and water main. There is also a public trail system within the open space will be temporarily impacted and restored by the proposal.

The stream that will be crossed by the proposal originates within this open space and flows south, parallel to the maintenance road. This stream leaves the open space and eventually joins with Coal Creek. The project area is significantly vegetated with an overstory that is 80 percent deciduous trees (big-leaf maple, red alder, cottonwood, black poplar) and 20 percent coniferous trees (cedar and fir). The understory consists of ferns, low and tall Oregon grape, and salal. Vegetation along the stream consists of Indian plum, salmonberry, buttercup, horsetail, with invasive species included Herb Robert, Himalayan blackberry, and ivy. See figure 2 below for the current site location.

Figure 2



B. Zoning

The work area is within a City open space that is owned by the Utilities Department known as the Forest Hills Open Space. The open space and properties to the east are zoned R-2.5. Properties to the north, west and south are zoned R-3.5. No changes to zoning are proposed and the project maintains the existing water service to the residential uses.

C. Land Use Context

The project area within the public opens space has a land use designation of Parks/Single-Family Medium Density. No changes to the land use of the area will result from the project.

D. Critical Areas Function and Value, Regulations

i. Streams and Riparian Areas

Most of the elements necessary for a healthy aquatic environment rely on processes sustained by dynamic interaction between the stream and the adjacent riparian area (Naiman et al., 1992). Riparian vegetation in floodplains and along stream banks provides a buffer to help mitigate the impacts of urbanization (Finkenbine et al., 2000 in Bolton and Shellberg, 2001). Riparian areas support healthy stream conditions.

Riparian vegetation, particularly forested riparian areas, affect water temperature by providing shade to reduce solar exposure and regulate high ambient air temperatures,

slowing or preventing increases in water temperature (Brazier and Brown, 1973; Corbett and Lynch, 1985).

Upland and wetland riparian areas retain sediments, nutrients, pesticides, pathogens, and other pollutants that may be present in runoff, protecting water quality in streams (Ecology, 2001; City of Portland 2001). The roots of riparian plants also hold soil and prevent erosion and sedimentation that may affect spawning success or other behaviors, such as feeding.

Both upland and wetland riparian areas reduce the effects of flood flows. Riparian areas and wetlands reduce and desynchronize peak crests and flow rates of floods (Novitzki, 1979; Verry and Boelter, 1979 in Mitsch and Gosselink, 1993). Upland and wetland areas can infiltrate floodflows, which in turn, are released to the stream as baseflow.

Stream riparian areas, or buffers, can be a significant factor in determining the quality of wildlife habitat. For example, buffers comprised of native vegetation with multi- canopy structure, snags, and down logs provide habitat for the greatest range of wildlife species (McMillan, 2000). Vegetated riparian areas also provide a source of large woody debris that helps create and maintain diverse in-stream habitat, as well as create woody debris jams that store sediments and moderate flood velocities.

Sparsely vegetated or vegetated buffers with non-native species may not perform the needed functions of stream buffers. In cases where the buffer is not well vegetated, it is necessary to either increase the buffer width or require that the standard buffer width be restored or revegetated (May 2003). Until the newly planted buffer is established the near term goals for buffer functions may not be attained.

Riparian areas often have shallow groundwater tables, as well as areas where groundwater and surface waters interact. Groundwater flows out of riparian wetlands, seeps, and springs to support stream baseflows. Surface water that flows into riparian areas during floods or as direct precipitation infiltrates into groundwater in riparian areas and is stored for later discharge to the stream (Ecology, 2001; City of Portland, 2001).

ii. Geologic Hazard Areas

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages

between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provide a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backdrop for urbanized areas enhancing property values and buffering urban development.

iii. Habitat

Urbanization, the increase in human settlement density and associated intensification of land use, has a profound and lasting effect on the natural environment and wildlife habitat (McKinney 2002, Blair 2004, Marzluff 2005, Munns 2006), is a major cause of native species local extinctions (Czech et al 2000), and is likely to become the primary cause of extinctions in the coming century (Marzluff et al. 2001a). Cities are typically located along rivers, on coastlines, or near large bodies of water. The associated floodplains and riparian systems make up a relatively small percentage of land cover in the western United States, yet they provide habitat for rich wildlife communities (Knopf et al. 1988), which in turn provide a source for urban habitat patches or reserves. Consequently, urban areas can support rich wildlife communities. In fact, species richness peaks for some groups, including songbirds, at an intermediate level of development (Blair 1999, Marzluff 2005). Protected wild areas alone cannot be depended on to conserve wildlife species. Impacts from catastrophic events, environmental changes, and evolutionary processes (genetic drift, inbreeding, colonization) can be magnified when a taxonomic group or unit is confined to a specific area, and no one area or group of areas is likely to support the biological processes necessary to maintain biodiversity over a range of geographic scales (Shaughnessy and O'Neil 2001). As well, typological approaches to taxonomy or the use of indicators present the risk that evolutionary potential will be lost when depending on reserves for preservation (Rojas 2007). Urban habitat is a vital link in the process of wildlife conservation in the U.S.

III. Consistency with Code Requirements:

A. Zoning District Dimensional Requirements

The proposal is exempt from meeting zoning dimensional requirements. A clearing and grading permit is required. **See Section X for a related condition of approval.**

B. Critical Areas Requirements LUC 20.25H:

The City of Bellevue Land Use Code Critical Areas Overlay District (LUC 20.25H) establishes standards and procedures that apply to construction of improvements on any site which contains in whole or in part any portion designated as critical area or critical area buffer. The proposed replacement of an existing water line within a steep slope critical area, stream, and their protective buffer and setbacks and must meet requirements in LUC 20.25H.055.

i. Consistency with LUC 20.25H.055.C.2.a

New or expanded facilities and systems are allowed within the critical area or critical area buffer only where no technically feasible alternative with less impact on the critical area or critical area buffer exists. A determination of technically feasible alternatives will consider:

1. The location of existing infrastructure;

The proposal is to replace an existing water line within the same alignment that connects a PRV with an existing water reservoir facility.

- 2. The function or objective of the proposed new or expanded facility or system; The improvements proposed are intended to ensure water service continues to be provided to the surrounding neighborhoods.
- Demonstration that no alternative location or configuration outside of the critical area or critical area buffer achieves the stated function or objective, including construction of new or expanded facilities or systems outside of the critical area;

Given the linear nature of the water main and the location of the PRV facility and the water reservoir there are no alternatives to the proposed existing alignment that avoid the critical areas. The project was located as close to the existing water line as possible to minimize tree loss and disturbance. The water line is also proposed to be bored under the stream to avoid direct impact to the stream.

4. Whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact of proposed disturbance; and

The proposed avoidance measures are incorporated to avoid impacts. The only alternative would be to redesign the City's water system in this area which would have significantly more cost and impact than the proposal.

5. The ability of both permanent and temporary disturbance to be mitigated.

The project was designed to avoid and minimize impacts. 15 significant trees, 19 trees total, are proposed to be removed by the project. Trees will be replaced at a ratio of 3:1. A restoration plan has been prepared that restores all of the approximately 17,505 square feet of temporary disturbance. See Section X for a related condition of approval.

ii. Consistency with LUC 20.25H.055.C.2.b

If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the following:

1. Location and design shall result in the least impacts on the critical area or critical area buffer.

As previously discussed the location of the water line replacement is generally dictated by the location of the PRV and reservoir facilities.

2. Disturbance of the critical area and critical area buffer, including disturbance of vegetation and soils, shall be minimized.

The proposal consolidates impacts and limits disturbance by locating the water line in the existing alignment as much as possible, where there are fewer trees found. The proposal also bores under the stream to avoid directly impacting the stream. Where temporary impact is proposed the area will be restored and the 15 trees proposed for removal will be replaced at a ratio of 3:1.

 Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists.

The stream is a Type-N, non-fish bearing stream, and no direct impact is proposed to the stream. All temporary impacts, including those in the stream buffer, are proposed to be restored.

4. Any crossing over of a wetland or stream shall be designed to minimize critical area and critical area buffer coverage and critical area and critical area buffer disturbance, for example by use of bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area or critical area buffer than multiple intrusions into the critical area or critical area buffer.

The water line will be bored six feet under the stream which is consistent with this standard. The proposed temporary construction bridge will utilize steel plates and dunnage to minimize disturbance to the stream and banks. The work is also proposed to occur during August and September when the creek is dry to minimize stream disturbance and turbidity. The project has received Hydraulic Project Approval from the Washington Department of Fish and Wildlife. The approval did not include any conditions regarding the temporary bridge crossing but did require the water line to be placed at a depth below the scour depth to avoid exposure of the water line. All requirements imposed by the HPA permit are required to be implemented. **See Section X for a related condition of approval.**

5. All work shall be consistent with applicable City of Bellevue codes and standards.

The proposed project will comply with City of Bellevue codes and standards.

6. The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume or flood storage capacity, or hydroperiod.

The project will replace an underground water line and does not increase impervious surface or result in a change to aquatic flow or storage capacity.

- 7. Associated parking and other support functions, including, for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists.

 No parking function is proposed.
- 8. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

Fifteen significant trees, 19 trees total, are proposed to be removed by the project. Trees will be replaced at a ratio of 3:1. A restoration plan has been prepared that restores all of the approximately 17,505 square feet of temporary disturbance. **See Section X for a related condition of approval.**

iii. Consistency with LUC 20.25H.125

Development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

1. Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

No structures or foundations are proposed. The disturbance to the slope will be temporary and the existing topography will be restored.

2. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

No structures or foundations are proposed. The disturbance to the slope will be temporary and the existing topography will be restored.

3. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

The geotechnical report submitted states that the improvements will not increase the risk of slope instability, provided that vegetation is re-established, surface water is diverted from the alignment, and the trench is backfilled to limit groundwater

accumulation. See Section X for a related condition of approval.

4. The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall:

No walls or alteration of the existing grade is proposed

5. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;

No new impervious surfaces are proposed.

- 6. Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;
- 7. Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;
- 8. On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;
- 9. On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; and

No structures or permanent grade change is proposed.

10. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

Fifteen significant trees, 19 trees total, are proposed to be removed by the project. Trees will be replaced at a ratio of 3:1. A restoration plan has been prepared that restores all of the approximately 17,505 square feet of temporary disturbance. **See Section X for a related condition of approval.**

IV. Public Notice and Comment

Application Date: March 25, 2019
Public Notice (500 feet): April 11, 2019
Minimum Comment Period: April 25, 2019

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The Notice of Application for the Critical Areas Land Use Permit was published in the City of Bellevue Weekly Permit Bulletin and the Seattle Times on April 11, 2019. Notice was also mailed to property owners within 500 feet of the project site. No comments were received.

V. Summary of Technical Reviews

A. Clearing and Grading

The Clearing and Grading Division of the Development Services Department has reviewed the proposed site development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development with conditions for a clearing and grading permit being obtained and that rainy seasons restrictions apply. **See Section X for a related condition of approval.**

B. Utilities

The Utility Department reviewed the proposal and approved the application.

VI. State Environmental Policy Act (SEPA)

The proposal is repair of an existing utility in the same alignment with no increase in size and is exempt from SEPA per WAC 197-11-800(3) and BCC 22.02.032.D.

VII. Changes to Proposal Due to Staff Review

No changes to the proposal were requested.

VIII. Decision Criteria

A. 20.30P.140 Critical Area Land Use Permit Decision Criteria – Decision Criteria

The Director may approve, or approve with modifications an application for a Critical Area Land Use Permit if:

1. The proposal obtains all other permits required by the Land Use Code;

The applicant must obtain approval of clearing and grading permit 19-109139-GD. See Section X for a related condition of approval.

2. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;

The project utilizes the best available construction techniques to have the least impact on critical areas as possible. The proposal will bore the water line under the stream to avoid directly impacting the stream. All temporary disturbance will be restored as previously discussed in this report. **See Section X for a related condition of**

approval.

3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and;

As discussed in Section III of this report performance standards will be met.

4. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;

The proposed activity will maintain a water utility system.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

The submitted restoration plan provided is consistent with LUC 20.25H.210. Maintenance and monitoring are required for five years but may be reduced to three years if performance measured are met by year three. A maintenance and monitoring plan consistent with LUC 20.25H.220 are required to be submitted under the clearing and grading permit. This plan must include goals and performance standards to measure the success of the restoration. This plan must also be consistent with the requirements contained in the HPA permit. **See Section X for a related condition of approval.**

6. The proposal complies with other applicable requirements of this code.

As discussed in this report, the proposal complies with all other applicable requirements of the Land Use Code.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, City Code and Standard compliance reviews, the Director of Development Services Department does hereby **approve with conditions** the proposed replacement of an existing water main in the Forest Hills Open Space.

Note-Expiration of Approval of Critical Areas Land Use Permit: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a clearing and grading permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code – BCC 23.76	Savina Uzunow, 425-452-7860
Land Use Code – BCC Title 20	Reilly Pittman, 425-452-4350
Noise Control – BCC 9.18	Reilly Pittman, 425-452-2973

The following conditions are imposed under the Bellevue City Code authority referenced:

1. Clearing and Grading Permit

Approval of this Critical Areas Land Use Permit does not constitute an approval of any construction permit. A clearing and grading permit (19-109139-GD) must be approved before construction can begin. Plans submitted as part of any permit application shall be consistent with the activity permitted under this approval.

Authority: Land Use Code 20.30P.140; Clearing & Grading Code 23.76.035

Reviewer: Savina Uzunow, Development Services Department

2. Rainy Season Restrictions

Due to steep slopes on the site, no clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A

Reviewer: Savina Uzunow, Development Services Department

3. Geotechnical Recommendations

The project shall be constructed per the recommendations of the geotechnical engineer as found in the submitted geotechnical report and revisions in the project file or as amended as needed in the future.

Authority: Land Use Code 20.30P.140

Reviewer: Reilly Pittman, Development Services Department

4. Hydraulic Project Approval

The project is required to meet the conditions contained in the HPA permit that include

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depth of the water line and the requirement for maintenance and monitoring of the restoration.

Authority: Land Use Code 20.30P.140

Reviewer: Reilly Pittman, Development Services Department

5. Restoration of Temporary Disturbance

All areas of temporary disturbance are required to be restored per the submitted restoration plan.

Authority: Land Use Code 20.25H.220

Reviewer: Reilly Pittman, Development Services Department

6. Maintenance and Monitoring Plan: Maintenance and monitoring is required for five years but may be reduced to three years if performance measured are met by year three. after installation of restoration planting. A maintenance and monitoring plan is required to be submitted under the clearing and grading permit that is consistent with LUC 20.25H.220.

Authority: Land Use Code 20.30P.140; 20.25H.220

Reviewer: Reilly Pittman, Development Services Department

UTILITIES

FOREST HILLS WATER MAIN REHABILITATION (C.I.P. W-16) AND PRV STATION REPLACEMENT (C.I.P. W-67)

MAYOR

JOHN CHELMINIAK

DEPUTY MAYOR LYNNE ROBINSON

CITY MANAGER BRAD MIYAKE

CITY COUNCIL **CONRAD LEE**

JARED NIEUWENHUIS

JENNIFER ROBERTSON

JOHN STOKES JANICE ZAHN

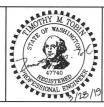
UTILITIES DIRECTOR

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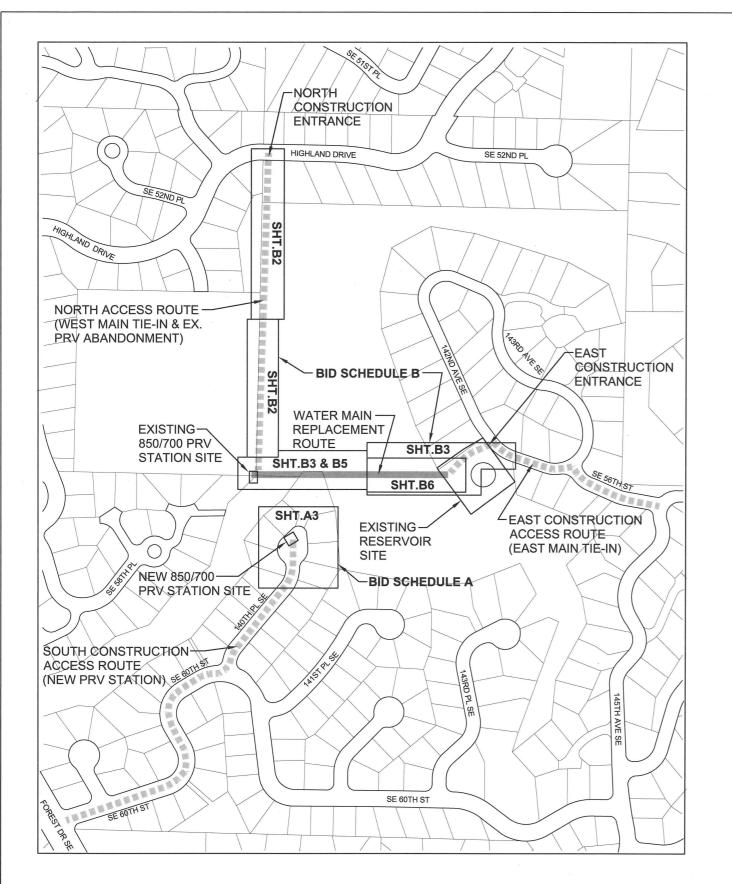
	SHEET INDEX							
GENERA	GENERAL SHEETS							
SHEET#	DESCRIPTION							
G1	COVER SHEET & SHEET INDEX							
G2	SITE AREA INDEX & CONSTRUCTION ACCESS MAP AND GENERAL NOTES							
G3	TESC BMP STANDARD DETAILS							
SCHEDU	LE A - PRV STATION REPLACEMENT (C.I.P. W-67)							
SHEET#	DESCRIPTION							
A1	PRV STATION GENERAL NOTES, LEGEND & ABBREVIATIONS							
A2	NEW 850/700 PRV STATION SITE PLAN, 140TH PL SE							
A3	NEW 850/700 PRV STATION DETAILS, 140TH PL SE							
SCHEDU	LE B - FOREST HILLS WATER MAIN REHABILITATION (C.I.P. W-16)							
SHEET#	DESCRIPTION							
B1	WATER MAIN GENERAL NOTES, LEGEND & ABBREVIATIONS							
B2	NORTH CONSTRUCTION ACCESS AND TESC PLAN							
В3	EAST CONSTRUCTION ACCESS AND TESC PLAN							
B4	TREE REMOVAL AND PROTECTION PLAN							
B5	WATER MAIN PLAN AND PROFILE (LOWER)							
В6	WATER MAIN PLAN AND PROFILE (UPPER)							
B7	AUGER BORE PLAN AND DETAILS							
B8	RESTORATION AND PLANTING PLAN							
В9	RESTORATION PLANTING SCHEDULE AND NOTES							
B10	RESTORATION DETAILS							

BID NO. 19047









CONSTRUCTION SEQUENCE:

 REPLACEMENT 850/700 PRESSURE REDUCING VALVE (PRV) STATION MUST BE ONLINE AND FULLY OPERATIONAL BEFORE FINAL CONNECTION OF REPLACEMENT 12" WATER MAIN (850 ZONE) TO EXISTING 850 ZONE WATER MAIN.

TOPOGRAPHIC SURVEY INFORMATION

EXISTING TOPOGRAPHIC AND UTILITY MAPPING SHOWN HEREIN WAS PREPARED BY THIS OFFICE UNDER THE DIRECTION OF MICHAEL J. LEMASA, WA. PLS 36802 FOR THE PURPOSE OF IN-HOUSE CIVIL WATERMAIN DESIGN AND IS NOT INTENDED FOR USE BY ANY OTHER ENTITY FOR ANY OTHER PURPOSE. SURVEY CONTROL ORIGIN:

HORIZONTAL: C.O.B. CONTROL POINT 2270 WAS HELD FOR POSITION AND THE LINE BETWEEN SAID POINT AND C.O.B CONTROL POINT 1352 WAS HELD AS BASIS OF BEARING N 27°10'36" E. PROJECT CONTROL POINTS DERIVED VIA GROUND TRAVERSE. DATUM: NAD 83/(2011) PER C.O.B. CONTROL DATABASE.

VERTICAL: C.O.B. CONTROL POINT 206 WAS HELD FOR ELEVATION (659.01) AND TRANSFERRED TO PROJECT CONTROL POINTS VIA TRIG LEVELLING, CLOSING TO C.O.B.CONTROL POINT 2123R (ELEVATION 849.58 DERIVED VIA RTK GPS). DATUM: NAVD '88 PER CITY CONTROL DATABASE.

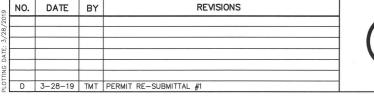
SITE BENCHMARKS: 1. STANTEC CONTROL POINT 10002 - TOP OF MAG NAIL @ NORTH EDGE OF WALK, EAST SIDE OF TRAIL, ON SOUTH SIDE OF HIGHLAND DRIVE, APPROX 180' EAST OF 139TH AVE SE - ELEVATION = 629.87 FEET NAVD '88. 2. STANTEC CONTROL POINT 10020 TOP OF NAIL FOUND NE SIDE OF 143RD AVE SE OPPOSITE TANK SITE - ELEVATION = 850.34 NAVD '88.

TOPOGRAPHIC FEATURES, ELEVATIONS, AND CONTOURS DERIVED VIA DIRECT GROUND SURVEY UTILIZING A LEICA TS-15 SERIES ROBOTIC TOTAL STATION AND CARLSON SURVEYORZ/SURVE CE DATA COLLECTOR. CONTOUR INTERVAL IS 2 FEET MEETING OR EXCEEDING NATIONAL MAP ACCURACY STANDARDS (ONE-HALF CONTOUR INTERVAL AT 90% CONFIDENCE LEVEL).

RIGHT-OF-WAY LINES SHOWN REPRESENT CALCULATED FIT OF MONUMENTATION RECOVERED TO AVAILABLE PLAT, ASSESSOR'S MAP, OR OTHER RECORD INFORMATION. KING COUNTY GIS WAS UTILIZED FOR PARCEL LINES SHOWN AND FOR RIGHT-OF-WAY LINES WHERE MONUMENTATION WAS NOT READILY FOUND. THIS MAPPING DOES NOT REPRESENT A BOUNDARY SURVEY AND SHALL NOT BE RELIED UPON AS SUCH.

UTILITY INFORMATION HEREIN COMPILED FROM RECORD INFORMATION, MEASUREMENTS MADE TO SURFACE-OBSERVED ABOVE-GRADE FEATURES, AND MEASUREMENTS MADE TO UTILITY LOCATOR MARKINGS SET BY APS, INC. IN JANUARY 2019. UTILITY INFORMATION SHOWN IS APPOXIMATE AND FOR THE DEVELOPMENT OF DESIGN DRAWINGS ONLY AND SHALL NOT BE RELIED UPON FOR CONSTRUCTION, PER PROJECT SCOPE OF SERVICES. SURVEYOR MAKES NO WARRANTY AS TO THE COMPLETENESS OR ACCURACY OF EXISTING UTILITIES SHOWN ON THIS MAP.

PERMIT SUBMITTAL







Call I	Approved By
弘	DESIGN/CONSTRUCTION MANAGER
125	DECION CURERVACOR

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RUCTION MANAGER	DATE	DESIGNED BY TVW	D/
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FOREST HILLS WATER MAIN REHABILITATION

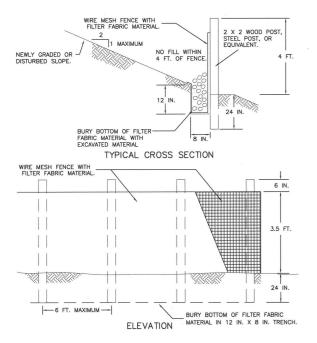
SITE AREA INDEX & CONSTRUCTION ACCESS MAP AND GENERAL NOTES

SHT G2 OF 16

PROVIDE ENERGY DISSIPATION AT TOE WHEN NEEDED. 1. TIRES, SANDBAGS, OR EQUIVALENT MAY BE USED TO WEIGHT PLASTIC SHEETING.

- 2. SEAMS BETWEEN SHEETS MUST OVERLAP A MINIMUM OF 12 IN. AND BE WEIGHTED OR TAPED.
- 3. PLASTIC SHEETING SHALL HAVE A MINIMUM THICKNESS OF 6 MIL.
- CONSTRUCT BERM OR SWALE AT TOP OF SLOPE AS DIRECTED BY THE CLEARING AND GRADING INSPECTOR.
- CONSTRUCT DITCH AT BASE OF SLOPE AS REQUIRED BY CITY CLEARING AND GRADING INSPECTOR. DISCHARGE TO APPROVED LOCATION.

PLASTIC COVERING FOR SLOPES AND STOCKPILES BMP C123



D 3-28-19 TMT PERMIT RE-SUBMITTAL #1

NO. DATE BY

- 1. FENCE SHALL NOT BE INSTALLED ON SLOPES STEEPER THAN 2 : 1.
- 2 JOINTS IN FILTER FABRIC SHALL BE OVERLAPPED 6 INCHES AT POST.
- 3. USE STAPLES, WIRE RINGS, OR EQUIVALENT TO ATTACH FABRIC TO WIRE FENCE,
- 4. REMOVE SEDIMENT WHEN IT REACHES 1/3 FENCE HEIGHT.

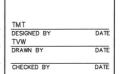
REINFORCED SILT FENCE BMP C233

REVISIONS

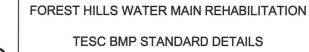




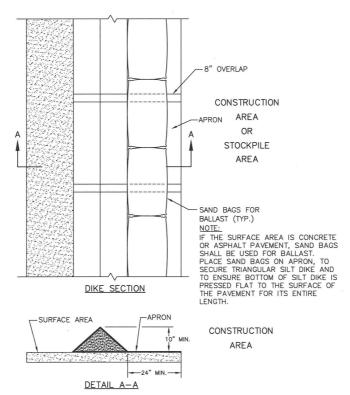




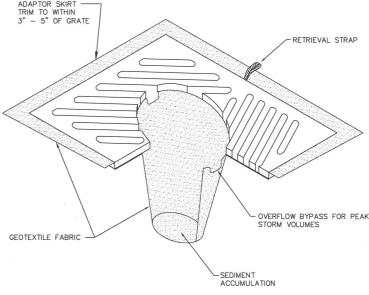




SHT <u>G3</u> OF <u>16</u>



TRIANGULAR SILT DIKE ON PAVEMENT BMP C208



- INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
- 2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL
- 3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN.

CATCH BASIN INLET PROTECTION INSERT BMP C220

SEE CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN FOR ADDITIONAL TESC BMP STANDARD DETAILS

Approved By DATE DATE

PERMIT SUBMITTAL

WATER GENERAL NOTES:

- 1. ALL WORK SHALL CONFORM TO THE LATEST CITY OF BELLEVUE UTILITY ENGINEERING STANDARDS. SOME STANDARD DETAIL DRAWINGS HAVE BEEN MODIFIED FOR THIS CONTRACT. THE CONTRACTOR SHALL REFER TO DETAIL DRAWINGS INCLUDED IN THE CONTRACT DOCUMENTS.
- 2. ALL PIPE SHALL BE DUCTILE IRON CLASS 52 UNLESS OTHERWISE SHOWN.
- 3. ALL PIPE AND FITTINGS NOT TO BE DISINFECTED IN PLACE SHALL BE SWABBED WITH 1% AVAILABLE CHLORINE SOLUTION PRIOR TO
- 4. THE NEW WATER MAIN SHALL BE CONNECTED TO THE EXISTING SYSTEM ONLY AFTER NEW MAIN IS PRESSURE TESTED, FLUSHED, DISINFECTED AND SATISFACTORY BACTERIOLOGICAL SAMPLE RESULTS ARE OBTAINED. SEE STANDARD DETAIL W-9.
- 5. AFTER DISINFECTING THE WATER MAIN, DISPOSE OF CHLORINATED WATER BY DISCHARGING TO THE NEAREST OPERATING SANITARY SEWER
- 6. WATER MAIN SHUT-OFF SHALL BE COORDINATED WITH THE WATER OPERATIONS DIVISION FOR PREFERRED TIMING DURING FLOW CONTROL CONDITIONS. WATER MAIN SHUT-OFFS SHALL NOT BE SCHEDULED TO TAKE PLACE ON FRIDAYS, OR ON THE FIVE DAYS BEFORE, NOR ONE DAY AFTER A CITY HOLIDAY, UNLESS OTHERWISE APPROVED BY THE UTILITY.
- 7. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN, AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
- 8. DEFLECT THE WATER MAIN ABOVE OR BELOW EXISTING UTILITIES AS REQUIRED TO MAINTAIN 3 FT. MINIMUM COVER AND 12 INCH MINIMUM VERTICAL CLEARANCE BETWEEN UTILITIES UNLESS OTHERWISE SPECIFIED.
- 9. WRAP ALL DUCTILE IRON PIPE AND ADJACENT VALVES AND FITTINGS WITH 8-MIL. POLYETHYLENE CONFORMING TO AWWA C105.
- 10. ALL FITTINGS SHALL BE BLOCKED PER STANDARD DETAIL UNLESS OTHERWISE SPECIFIED.
- 11. CALL 1-800-424-5555. OR 811, 72 HOURS BEFORE CONSTRUCTION FOR UTILITY LOCATIONS.
- 12. THE CONTRACTOR SHALL USE A VACUUM SWEEPER TO REMOVE DUST AND DEBRIS FROM PAVEMENT AREAS AS DIRECTED BY THE ENGINEER. FLUSHING OF STREETS SHALL NOT BE PERMITTED WITHOUT PRIOR CITY APPROVAL.
- 13. AVOID CROSSING WATER OR SEWER MAINS AT HIGHLY ACUTE ANGLES. THE SMALLEST ANGLE MEASURE BETWEEN UTILITIES SHOULD BE
- 14. AT POINTS WHERE EXISTING THRUST BLOCKING IS FOUND, MINIMUM CLEARANCE BETWEEN THE CONCRETE BLOCKING AND OTHER BURIED UTILITIES OR STRUCTURES SHALL BE 5 FEET.
- 15. WORKERS MUST FOLLOW CONFINED SPACE REGULATIONS AND PROCEDURES WHEN ENTERING OR DOING WORK IN COB OWNED CONFINED SPACES. COMPLETED PERMIT MUST BE GIVEN TO THE UTILITIES INSPECTOR PRIOR TO ENTRY
- 16. MANHOLES, CATCH BASINS AND VAULTS ARE CONSIDERED TO BE PERMIT-REQUIRED CONFINED SPACES. ENTRY INTO THESE SPACES SHALL BE IN ACCORDANCE WITH CHAPTER 296-809 WAC.
- 17. WHEN WORK IS TO OCCUR IN EASEMENTS, THE CONTRACTOR SHALL NOTIFY THE EASEMENT GRANTOR AND BELLEVUE UTILITIES IN WRITING A MINIMUM OF 48 HOURS IN ADVANCE OF BEGINNING WORK (NOT INCLUDING WEEKENDS OR HOLIDAYS). FAILURE TO NOTIFY GRANTOR AND BELLEVUE UTILITIES WILL RESULT IN A STOP WORK ORDER BEING POSTED UNTIL THE MATTER IS RESOLVED TO THE SATISFACTION OF BELLEVUE UTILITIES. A WRITTEN RELEASE FROM THE EASEMENT GRANTOR SHALL BE FURNISHED TO THE UTILITIES INSPECTOR PRIOR TO
- 18. THE CONTRACTOR SHALL RESTORE THE RIGHT-OF-WAY AND EXISTING PUBLIC UTILITY EASEMENT(S) AFTER CONSTRUCTION TO A CONDITION EQUAL OR BETTER THAN CONDITION PRIOR TO ENTRY. CONTRACTOR SHALL FURNISH A SIGNED RELEASE FROM ALL AFFECTED PROPERTY OWNERS AFTER RESTORATION HAS BEEN COMPLETED.

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W/ WITH WM WATER METER		
WM WATER METER		
TOTAL CONTRACTOR	WV	WATER VALVE

LEGEND					
EXISTING FEATURES	PROPOSED WATER DESIGN				
S00	3.在班★ ★ 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4 4.4	WATER MAIN FLXMJ ADAPTER TEE (MJXMJ) CROSS (MJ) REDUCER (MJ) GATE VALVE (MJ) BEND (MJ) BLOW OFF ASSY. (MJ) COUPLING THRUST BLOCK			
ROAD SIGN SWALE OR DITCH LINE STORM DRAIN STORM DRAIN (LARGER THAN 12") TYPE II CB / STORM MANHOLE CATCH BASIN SANITARY SEWER	TESC ©	CATCH BASIN INLET PROTECTION (CB INSERT) MARK CLEARING LIMITS			
i_ SEWER MANHOLE		(BMP C103) SILT FENCING (BMP C233) TREE TO BE REMOVED			
		STABILIZED CONSTRUCTION STAGING (QUARRY SPALLS)			
□ □ □ □ □ □ □	(7/1/2)	ACCESS (WOOD CHIPS) BORE PIT STOCKPILE (COVER WITH PLASTIC) (BMP C123)			
COMMUNICATION (CABLE TV, TELEPHONE) UTILITY VAULTS CONIFER TREE		TEMPORARY BRIDGING (STEEL PLATES, DUNNAGE, ETC)			
DECIDIOUS TREE SHRUBS / HEDGE	N N N N N N	HYDROSEED (BMP C120) JUTE NETTING (BMP C122)			
MAPPING PARCEL LINE		MULCH AND/OR LANDSCAPE BARK BMP C121)			
TAX LOT NUMBER R.O.W. CENTERLINE R.O.W. MARGIN SECTION LINE SURVEY MONUMENT OWNERSHIP TIE	520000000	BIODEGRADABLE WATTLES (BMP C285)			

TREE ABBREVIATIONS

RED ALDER BLACK POPLAR CEDAR COTTONWOOD BIG LEAF MAPLE DECIDOUS

DATE BY REVISIONS

D 3-28-19 TMT PERMIT RE-SUBMITTAL #1





Approved By

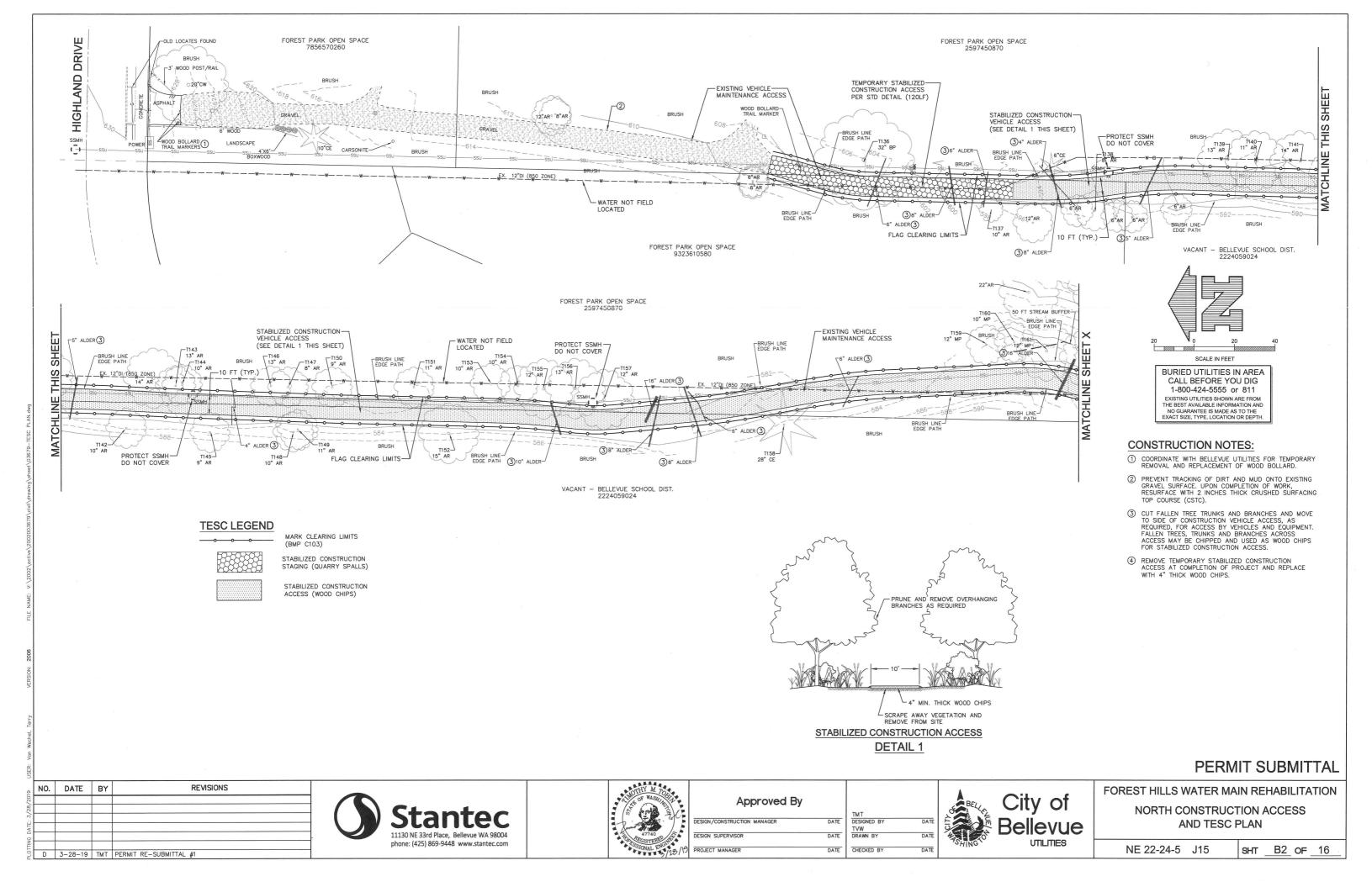
TMT DESIGNED BY DATE TVW DRAWN BY DATE DATE CHECKED BY PROJECT MANAGER

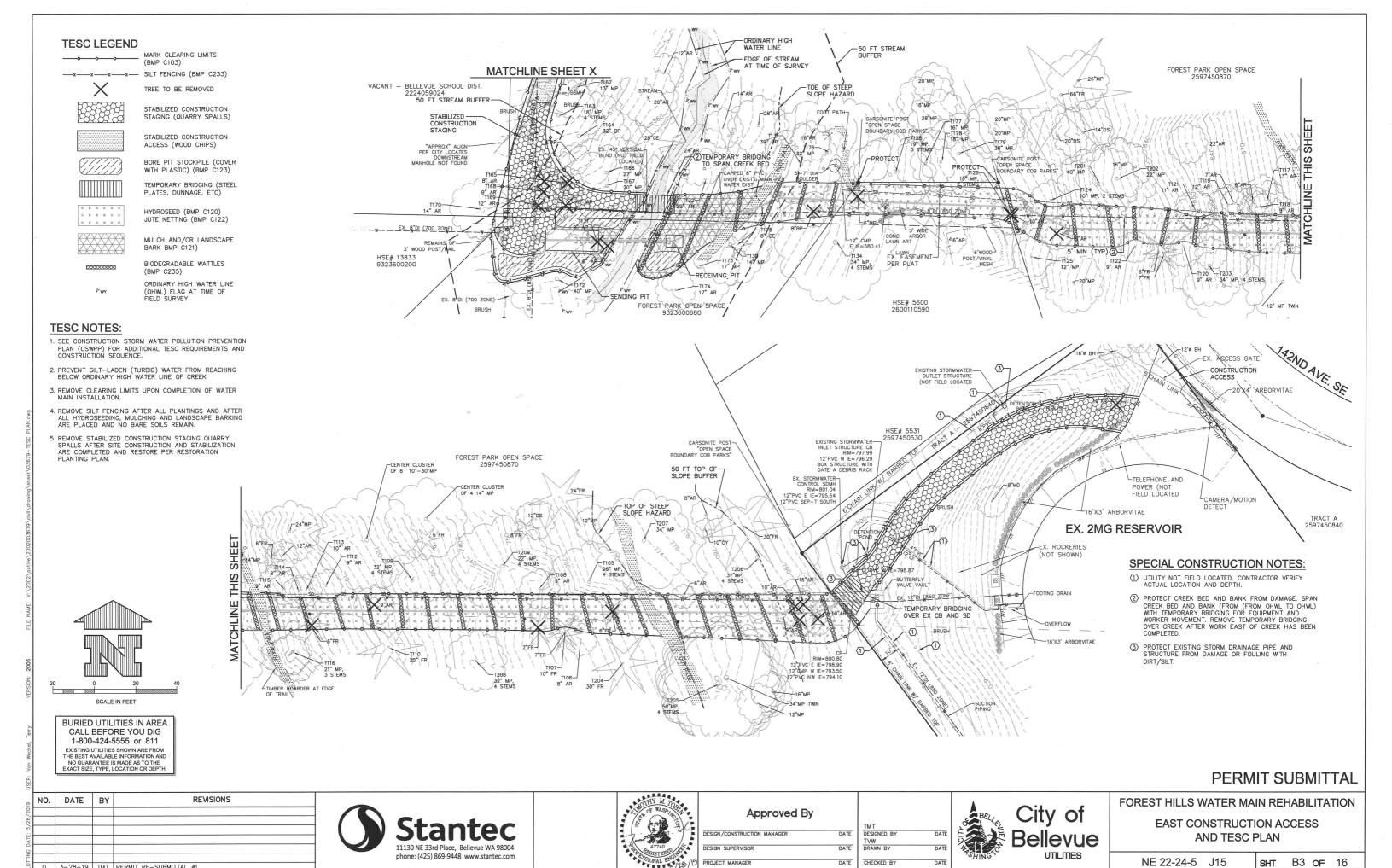


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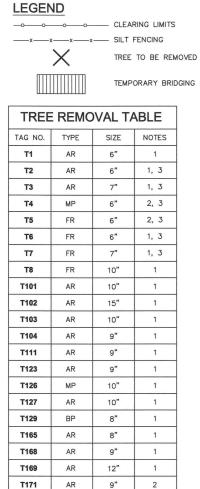
FOREST HILLS WATER MAIN REHABILITATION WATER MAIN GENERAL NOTES, **LEGEND & ABBREVIATIONS**

SHT B1 OF 16





D 3-28-19 TMT PERMIT RE-SUBMITTAL #1

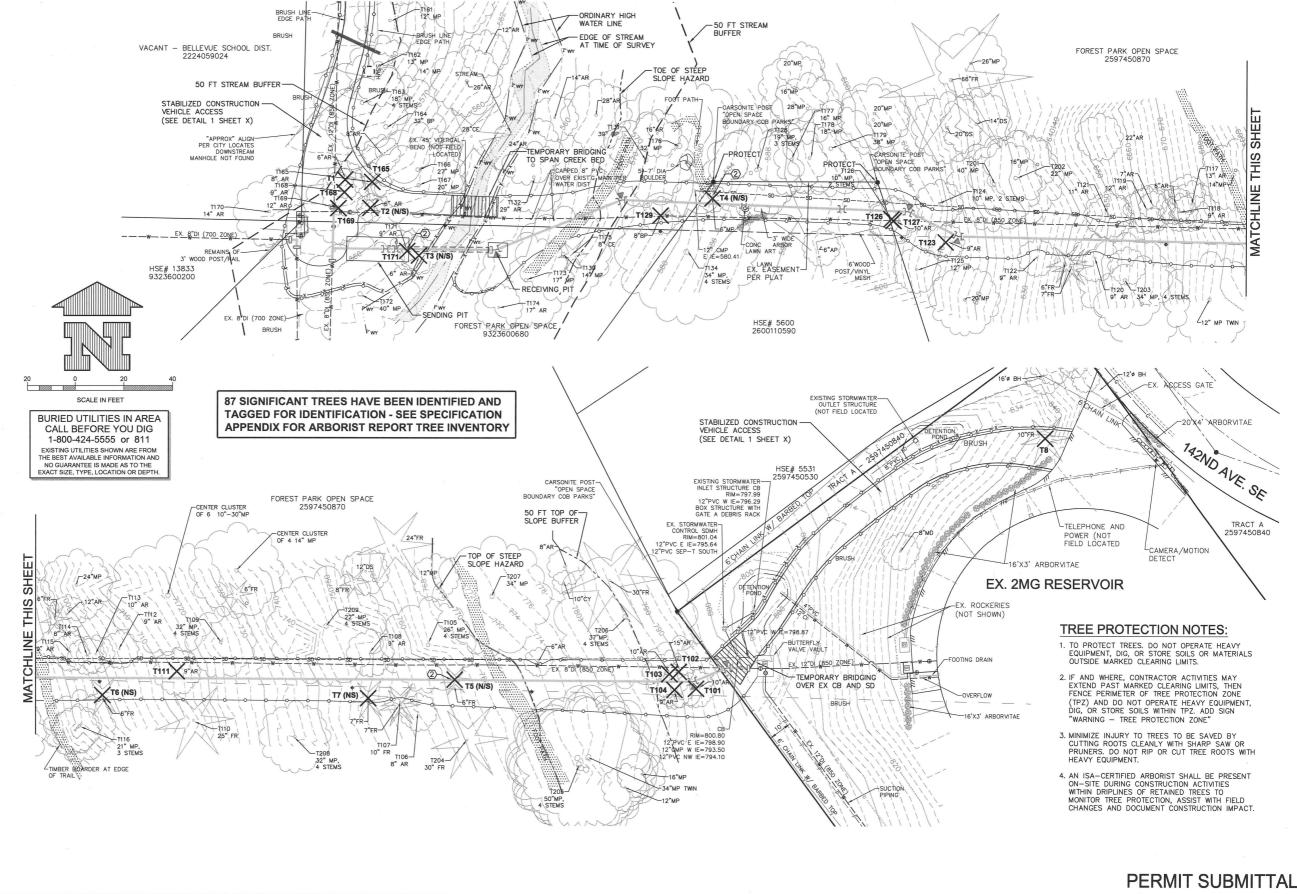


KEY:

- AR RED ALDER BP BLACK POPULAR CE WESTERN RED CEDAR FR DOUGLAS FIR MP BIG LEAF MAPLE

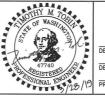
TREE REMOVAL NOTES:

- 1 EXCEPT WHERE OTHERWISE NOTED, CUT TREES 1 FOOT ABOVE GROUND SURFACE AND LEAVE ROOT BALLS IN PLACE.
- (2) REMOVE ROOT BALL.
- ③ TREES UNDER 8" ARE CONSIDERED NON-SIGNIFICANT (N/S).
- TREES TO BE REMOVED SHALL BE USED FOR TRAIL SLOPE RESTORATION, AS REQUIRED.
- (5) REMAINING REMOVED TREES MAY BE INSTALLED AS EXTRA WILDLIFE HABITAT FEATURES.
- 6 CUT TREES LEFT ONSITE SHALL BE DE-LIMBED NOT MORE THAN 24" FROM THE TREE TRUNK. LIMBS SHALL BE REMOVED FROM THE SITE OR CHIPPED ONSITE AND CHIPS SPREAD ACROSS FOREST FLOOR, NOT PILED.

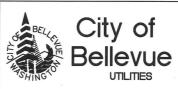


REVISIONS NO. DATE BY 3-28-19 TMT PERMIT RE-SUBMITTAL #1





Approved By			
		ТМТ	
CONSTRUCTION MANAGER	DATE	DESIGNED BY TVW	DATE
SUPERVISOR	DATE	DRAWN BY	DATE
CT MANAGER	DATE	CHECKED BY	DATE

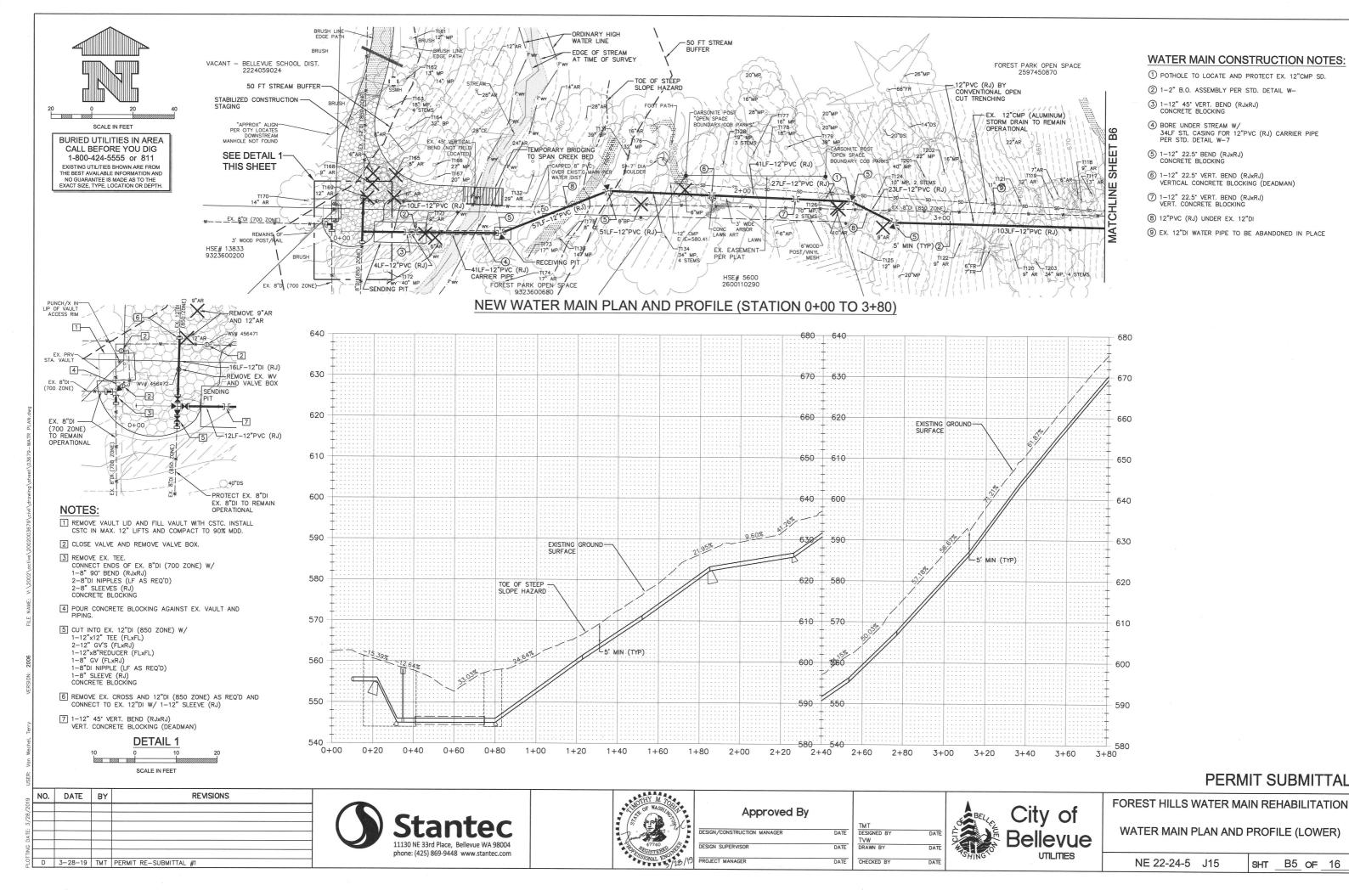


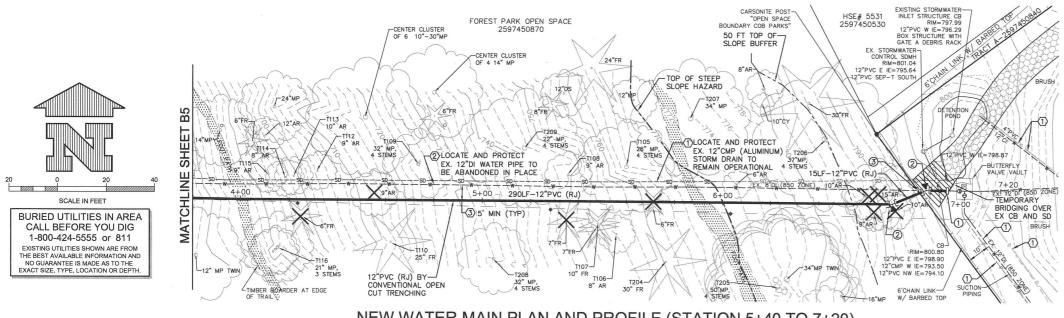
FOREST HILLS WATER MAIN REHABILITATION

TREE REMOVAL AND PROTECTION PLAN

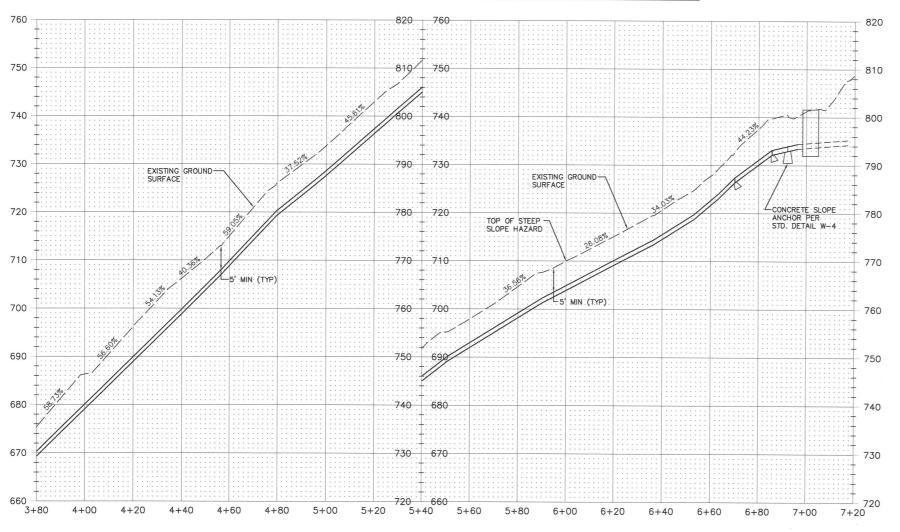
NE 22-24-5 J15

SHT B4 OF 16





NEW WATER MAIN PLAN AND PROFILE (STATION 5+40 TO 7+20)



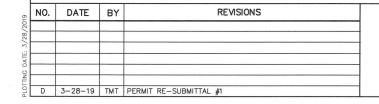
SPECIAL CONSTRUCTION NOTES:

- 1 BURIED UTILITY SHOWN BASED ON CITY-FURNISHED DRAWINGS - NOT SURVEYED (LOCATION APPROXIMATE)
- ② EX. 12"DI WATER MAIN TO REMAIN OPERATIONAL UNTIL FINAL CUT IN AND CONNECTION OF NEW 12"PVC (RJ) WATER MAIN.
- 3 PROTECT EX. 12"DI WATER MAIN UNTIL NEW 12"PVC (RI) MAIN IS ONLINE AND OPERATIONAL POTHOLE TO LOCATE EX. 12"DI WATER MAIN TO ENSURE ACTUAL LOCATION AND DEPTH. MAINTAIN MINIMUM 5 FEET OF CLEARANCE BETWEEN EX. 12"DI WATER MAIN AND NEW 12"PVC (RJ) WATER MAIN.

WATER MAIN CONSTRUCTION NOTES:

- 1 CUT INTO EX. 12"DI W/ 1-12" DI SLEEVE (RJxRJ) 1-12" PVC NIPPLE (LF AS REQ'D.)
- 2 1-8" DI 22.5" VERTICAL BEND (RJxRJ) (ROTATE AS REQUIRED)
 CONCRETE BLOCKING PER STANDARD DETAIL W-2
- 3 CAP END OF EX. 12"DI W/ 1-12" CAP (MJ)

PERMIT SUBMITTAL







ASHINGTON OF	Approved By
	DESIGN/CONSTRUCTION MANAGER
ERED HELD	DESIGN SUPERVISOR
I. BI . /10	DDO IFOT MANAGED

DESIGNED BY TVW DRAWN BY DATE DATE DATE DATE CHECKED BY

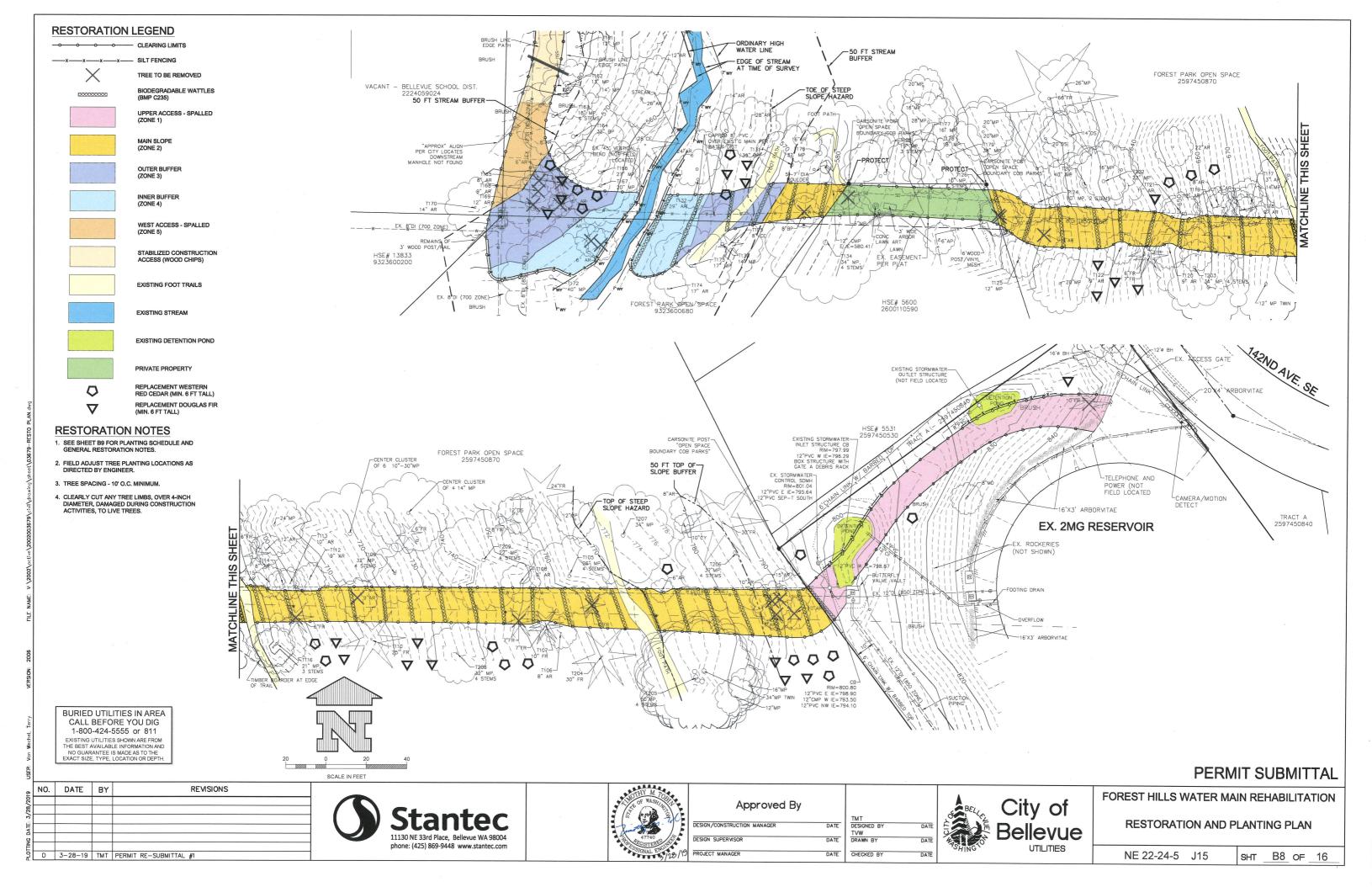


FOREST HILLS WATER MAIN REHABILITATION

WATER MAIN PLAN AND PROFILE (UPPER)

NE 22-24-5 J15

SHT B6 OF 16



RESTORATION PLANTING SCHEDULE

	RESTORATION FLANTING SCHEDULE																													
Zone	Description	Total SF	Planting SF	Structural Community	Spp Name	Common Name	% Community Comp	Plant Quantity ¹	Container	Spacing O.C. (ft)	Grouping	Planting Comments																		
				Tree	Pseudotsuga menziesii	Douglas Fir	50	1	5 gallon or B&B	9		Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer																		
			2254	Tree	Thuja plicata	Western Red Cedar	50	2	5 gallon or B&B	9	ı	Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer																		
1	Upper Access Spalled	2574		Shrub	Gaultheria shallon	Salal	25	41	1 gallon	4	4-8																			
			(excludes	Shrub	Polystichum munitum	Western Sword Fern	25	41	1 gallon	4	4-8																			
			detention pond	Shrub	Mahonia nervosa	Low Oregon Grape	25	41	1 gallon	4	4-8																			
			areas)	Shrub	Myrica californica	California Waxmyrtle	25	41	1 gallon	4	4-8																			
			8450	Tree	Pseudotsuga menziesii	Douglas Fir	50	14	5 gallon or B&B	9	-	Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer																		
2	Main Slope	9822	0430	Tree	Thuja plicata	Western Red Cedar	50	13	5 gallon or B&B	9	-	Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer																		
2	Main Slope	9022	(excludes foot	Shrub	Gaultheria shallon	Salal	40	244	1 gallon	4	4-8																			
			trails and private	Shrub	Polystichum munitum	Western Sword Fern	20	122	1 gallon	4	4-8																			
			property)	Shrub	Mahonia nervosa	Low Oregon Grape	40	244	1 gallon	4	4-8																			
		0.55					2297	Tree	Pseudotsuga menziesii	Douglas Fir	50	6	5 gallon or B&B	9		Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer														
3	Outer Stream Buffer		2201	Tree	Thuja plicata	Western Red Cedar	50	6	5 gallon or B&B	9		Planted outside the alignment, at approximate locations on planting plans; field adjustments at the direction of engineer																		
3	Outer Stream Buller	2455		Shrub	Gaultheria shallon	Salal	40	66	1 gallon	4	4-8																			
			(excludes foot trails)	Shrub	Polystichum munitum	Western Sword Fern	20	33	1 gallon	4	4-8																			
				Shrub	Mahonia nervosa	Low Oregon Grape	40	66	1 gallon	4	4-8																			
				Shrub	Rubus spectabilis	Salmonberry	50	67	1 gallon	4	4-8																			
				Shrub	Cornus sericea	Red Twig Dogwood	25	34	1 gallon	4	4-8																			
4	Inner Stream Buffer	1861	1861	Shrub	Oemleria cerasiformis	Indian Plum	25	34	1 gallon	4	4-8																			
																						Seed	Native Riparian Seed Mix	60% Blue Wildrye 30% Meadow Barley 10% California Brome	100	-	seed	-	-	2 lb. per 1000 sq ft (40-60 lbs. per acre), hydroseed with tackifier
				Shrub	Gaultheria shallon	Salal	40	23	1 gallon	4	4-8																			
5	West Access Spalled	793	793	Shrub	Polystichum munitum	Western Sword Fern	20	11	1 gallon	4	4-8																			
				Shrub	Mahonia nervosa	Low Oregon Grape	40	23	1 gallon	4	4-8																			
	Areas, except Zone 4, Stream Buffer			Seed Mix	Native Erosion Control Mix	20% Mountain Brome 20% Slender Wheatgrass 20% Perennial Ryegrass 20% Annual Ryegrass 10% White Clover 10% Sterile Triticale Hybrid	100		seed			2 lb. per 1000 sq ft (40 lbs. per acre), hydroseed with tackifier, and then covered with jute blanket. Shrubs planted through holes in jute blanket.																		

1. Plant quantities calculated using triangular spacing arrangements.

GENERAL RESTORATION NOTES:

- 1. CLEAR DETENTION PONDS OF ALL VEGETATION (CURRENTLY COVERED WITH INVASIVE ENGLISH IVY). (ZONE 1)
- 2. RESTORE DETENTION POND SLOPES TO PRE-CONSTRUCTION CONDITIONS AND SEED WITH EROSION CONTROL SEED MIX.
- RESTORE FOOT TRAILS TO EXISTING CONDITIONS. PHOTOGRAPH AND REMOVE EDGE LOGS AND VERTICAL BRACING. REINSTALL EDGE LOGS AND BRACING, IF APPROVED FOR REUSE BY THE ENGINEER, OR INSTALL NEW EDGE LOGS AND BRACING.
- TREES REMOVED ONSITE MAY BE USED FOR DOWNSLOPE EDGE STABILIZATION ALONG RESTORED TRAIL LENGTHS (ZONES 2 AND 3).
 REMAINING REMOVED TREES MAY BE LEFT WHERE FELLED AS EXTRA WILDLIFE HABITAT FEATURES.
- 5. PRIVATE PROPERTY AREA (LAWN, LANDSCAPING, AND ORNAMENTATION) SHALL BE RESTORED AND REPLACED IN KIND. (ZONE 2)
- REMOVE QUARRY SPALLS AT THE COMPLETION OF PROJECT AND RESTORE AREA WITH ADDITIONAL TOPSOIL TO CREATE SUITABLE CONDITIONS FOR HYDROSEEDING AND PLANTING.
- 7. HYDROSEED ALL DISTURBED AREAS, EXCEPT PATHS, WITH MULCH AND TACKIFIER TO BIND SOIL (SEE PLANTING SCHEDULE). COVER HYDROSEEDED BARE SOILS AREAS (OVER TRENCH BACKFILL, ETC) WITH EROSION CONTROL BLANKETS (BMP C122). IF USING JUTE MATTING, ADDITIONAL MULCH APPLICATION IS REQUIRED. EXCELSIOR, WOVEN STRAW BLANKETS, AND COIR BLANKETS MAY BE INSTALLED WITHOUT MULCH. ALL MATERIALS SHALL BE BIODEGRADEABLE.
- PLANTS SHALL BE INSTALLED THROUGH THE EROSION CONTROL BLANKETS BY CUTTING AN "X" IN THE EROSION CONTROL BLANKETS, AND PLANTING WITHIN THE OPENING.
- 9. PROPOSED MITIGATION FOR TREE REMOVAL IS REPLACEMENT AT 3:1 RATIO, AS DIRECTED BY THE ARBORIST.
- 10. ANY EXISTING SPRINKLER LINES BROKEN OR DISRUPTED SHALL BE REPLACED TO PROPER WORKING ORDER PRIOR TO WORK UNDER THIS CONTRACT AND SHALL BE ACCEPTABLE TO THE OWNER.

REVEGETATION NOTES:

- TOPSOIL MAY BE THE EXISTING SOIL STRIPPED AND STOCKPILED.
- 2. COMPACTED SOIL AREAS TO BE PLANTED AND SEEDED SHALL RECEIVE SURFACE ROUGHENING AND TILLING AS REQUIRED TO PREPARE FOR PLANTING
- TREE AND SHRUB PIT BACKFILLING SOIL SHALL CONSIST OF 4 PARTS TOPSOIL AND ONE PART COMPOST BY VOLUME. BACK FILL
 SHALL INCLUDE WATER ABSORBING POLYMER MIXED INTO BACKFILL AT MANUFACTURERES RECOMMENDED RATES. DECIDUOUS AND
 EVERGREEN TREES AND SHRUBS SHALL BE MULCHED TO A 3-INCH DEPTH WITH CORRE MULCH.
- 4. FERTILIZE PLANTS WITH 21-GRAM PLANTING TABLETS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- 5. SEED MIXTURES SHALL BE AS INDICATED ON THE PLANTING SCHEDULE OR AN APPROVED EQUAL.
- APPLY SEED UNIFORMALLY BY HYDROSEED METHOD AT A RATE OF 2-4 LBS PER 1000 SQ FT. ALL SEEDING OPERATIONS WILL INCLUDE
 MULCHING AT A RATE OF 1500 LBS PER 1000 SQ.FT, AND 16-16-16 ORGANIC FERTILIZER APPLIED AT THE RATE RECCOMENDED BY THE
 MANUFACTURER.
- INITIAL SEEDING AND PLANTING SHALL TAKE PLACE BETWEEN SEPTEMBER 15 AND NOVEMBER 30. MAINTENANCE SEEDING AND PLANTING MAY TAKE PLACE BETWEEN MARCH 21 AND MAY 15, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION, MAINTENANCE AND REPLACEMENT OF ALL LANDSCAPING MATERIALS SHOWN OR INDICATED ON THE APPROVED PLANS.

MAINTENANCE OF LANDSCAPING PLANTING PRIOR TO ACCEPTANCE OF PROJECT NOTES:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, WATERING, AND MAINTAINING ALL PLANTING UNTIL FINAL ACCEPTANCE
 OF ALL WORK UNDER THE CONTRACT
- TREES AND SHRUBS SHALL BE THOROUGHLY SOAKED AFTER PLANTING AND PROVIDED WITH ADDITIONAL WATER AT INTERVALS AS NECESSARY TO PROVIDE FOR GOOD HEALTH AND GROWTH OF THE PLANTING.
- 3. THE CONTRACTOR SHALL REPLACE ANY MATERIALS OR EQUIPMENT THAT ITS EMPLOYEES OR SUBCONTRACTORS HAVE DAMAGED.
- 4. PARTIAL UTILIZATION OF THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF THE REQUIREMENTS CONTAINED IN THE CONTRACT DOCUMENTS.
- PLANTS SHALL BE MAINTAINED IN A VIGOROUS, THRIVING CONDITION BY WATERING, CULTIVATING, AND WEEDING, PRUNING, SPRAYING, AND OTHER OPERATIONS NECESSARY. NO TREES OR SHRUBS WILL BE ACCEPTED UNLESS THEY ARE HEALTHY AND SHOW SATISFACTORY FOLIAGE CONDITIONS.
- MAINTENANCE SHALL INCLUDE, IN ADDITION TO THE FOREGOING, REPAIRS TO STAKES, WIRE, AND WRAPPINGS, THE REPAIR OF EROSION, AND ALL OTHER NECESSARY WORK OF MAINTENANCE.
- ANY EXISTING SPRINKLER LINES BROKEN OR DISRUPTED SHALL BE REPLACED TO PROPER WORKING ORDER PRIOR TO WORK UNDER THIS CONTRACT AND SHALL BE ACCEPTABLE TO THE OWNER.

REVEGETATION FINAL INSPECTION AND GUARANTEE NOTES:

- 1. INSPECTION OF LAWNS AND PLANTING WILL BE PART OF FINAL INSPECTION UNDER THE CONTRACT.
- WRITTEN NOTICE REQUESTING INSPECTION SHALL BE SUBMITTED TO THE ENGINEER AT LEAST 10 DAYS PRIOR TO THE ANTICIPATED INSPECTION DATE.
- FINAL ACCEPTANCE PRIOR TO START OF THE GUARANTEE PERIOD OF THE CONTRACT WILL BE ON WRITTEN APPROVAL BY THE ENGINEER, ON THE SATISFACTORY COMPLETION OF ALL WORK, INCLUDING MAINTENANCE, BUT EXCLUSIVE OF THE REPLACEMENT OF PLANT MATERIAL.
- 4. ANY DELAY IN THE COMPLETION OF ANY ITEM OF WORK IN THE PLANTING OPERATION WHICH EXTENDS THE PLANTING INTO MORE THAN ONE SEASON SHALL EXTEND THE CORRECTION PERIOD IN ACCORDANCE WITH THE DATE OF COMPLETION GIVEN ABOVE.
- 5. THE CONTRACTOR SHALL REPLACE, AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD PLANTS AND ALL PLANTS NOT IN A
- VIGOROUS, THRIVING CONDITION WHICH ARE NOTED AT THE END OF THE ONE-YEAR CORRECTION PERIOD.

 6. PLANTS USED FOR REPLACEMENT SHALL BE OF THE SAME SIZE AND VARIETY ON THE PLANT LIST. REPLACEMENT PLANTS SHALL BE
- FURNISHED, PLANTED, STAKED, AND MULCHED AS INDICATED FOR NEW PLANTS.

 ALL REVEGETATION WORK SHALL BE LEFT IN GOOD ORDER TO THE SATISFACTION OF THE ENGINEER, AND THE CONTRACTOR SHALL, WITHOUT ADDITIONAL EXPENSE TO THE OWNER, REPLACE ANY TREES, SHRUBS, ETC., WHICH DEVELOP DEFECTS OR DIE DURING THE
- ONE-YEAR CORRECTION PERIOD.

 THE CONTRACTOR SHALL BE RESPONSIBLE FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE OF THE WORK OF THIS SECTION, FOR MAINTAINING ALL PLANTINGS, INCLUDING ALL NECESSARY PLANT OR TREE REPLACEMENTS, WEEDING, CULTIVATING, FERTILIZING, PRUNING, CONTROL LING INSECTS AND DISEASES RE-GLYWING AND DEPENDAMENTAL OUTLIED OPERATIONS INCLUDENT.
- SECTION, FOR MAINTAINING ALL PLANTINGS, INCLUDING ALL NECESSARY PLANT OR TREE REPLACEMENTS, WEEDING, CULTIVATING, FERTILIZING, PRUNING, CONTROLLING INSECTS AND DISEASES, RE-GUYING, AND PERFORMING ALL OTHER OPERATIONS INCIDENT THERETO. THE CONTRACTOR SHALL OBTAIN A WRITTEN GUARANTEE FROM THE LANDSCAPING SUBCONTRACTOR EMBODYING THE PROVISIONS OF THIS PARAGRAPH.
- ALL PLANT MATERIALS SHALL BE IN A CONDITION ACCEPTABLE TO THE OWNER OR ITS REPRESENTATIVE AT THE END OF THE MAINTENANCE GUARANTEE PERIOD.

MAINTENANCE DURING MAINTENANCE AND GUARANTEE PERIOD NOTES:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING WATERING AND MAINTAINING SEEDED AND PLANTED AREAS FOR A
 PERIOD OF ONE YEAR AFTER ACCEPTANCE OF WORK BY CONSTRUCTION MANAGER.
- THE CONTRACTOR SHALL MAKE REGULAR BIMONTHLY VISITS TO THE PROJECT SITE AND SHALL PROVIDE DETAILED SITE VISIT AND
 MAINTENANCE REPORT VIA EMAIL TO THE ENGINEER DETAILING CLIMATIC CONDITIONS AT THE TIME OF VISIT, SOIL MOISTURE
 CONDITIONS, GENERAL HEALTH OF PLANT MATERIAL AND INDICATE ANY CORRECTIVE MEASURES PERFORMED.
- 3. THE CONTRACTOR SHALL REPLACE ANY DEAD OR DISEASED PLANTS DURING THE MAINTENANCE AND CORRECTION PERIOD.
- THE CONTRACTOR SHALL CLEAN-UP AND REMOVE UNUSED OR WASTE MATERIALS FROM THE SITE AND LEAVE THE AREA IN A NEAT CONDITION SATISFACTORY TO THE CITY WHENEVER IT PERFORMS WORK DURING THE MAINTENANCE PERIOD.
- 5. FINAL INSPECTION: THE OWNER AND CONTRACTOR SHALL MAKE A FINAL INSPECTION AT THE END OF THE ONE-YEAR CORRECTION PERIOD. ANY PLANTS AND MATERIALS FOUND DEFECTIVE AT TIME OF FINAL INSPECTION SHALL BE REPLACED WITHIN A TIME AGREED UPON BY BOTH PARTIES. IF IT IS TOO LATE IN THE PLANTING SEASON FOR REPLANTING, THE REPLACEMENTS SHALL BE MADE DURING THE NEXT PLANTING SEASON EVEN THOUGH SUCH PLANTING MAY RUN BEYOND THE MAINTENANCE AND CORRECTION PERIOD.

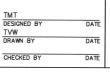
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6	NO.	DATE	BY	REVISIONS
3/2019				
3/28				
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WASHING TO	Approved By	
3	DESIGN/CONSTRUCTION MANAGER	DATE
TERED INC.	DESIGN SUPERVISOR	DATE
AL EN 128/19	PROJECT MANAGER	DATE





FOREST HILLS WATER MAIN REHABILITATION
RESTORATION PLANTING

SCHEDULE AND NOTES

NE 22-24-5 J15

SHT <u>B9</u> OF <u>16</u>

COMPOST/MULCH 3" DEEP (TYP), SEE SPECIFICATIONS 3" SAUCER BERM SPECIFIED BACKFILL MIXTURE SEE SPECIFICATIONS CONTROLLED
RELEASED FERTILIZER
AS SPECIFIED * 4" MIN. * - LOOSEN ROOTS OF ROOTBOUND PLANT BY SCORING OR PULLING PRIOR TO PLANTING 2 TIMES CONTAINER DIAMETER NOTE: SHRUB SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS PLANTING.

- COMPOSED MULCH 3" BERM TO MAKE -DEPTH (TYP) MULCH BED LEVEL - EXISTING GROUND SPECIFIED BACKFILL 4" MIN. - LOOSEN ROOTS OF ROOTBOUND PLANT BY SCORING OR PULLING PRIOR TO PLANTING 2 TIMES CONTAINER DIAMETER

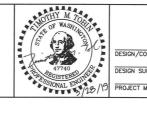
SHRUB PLANTING NTS

SHRUB PLANTING ON SLOPE

CONIFER PLANTING ON SLOPE

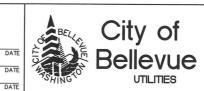
NO. DATE BY REVISIONS D 3-28-19 TMT PERMIT RE-SUBMITTAL #1





THY M TOOK	Aı
70	DESIGN/CONSTRUCTION
47740 MEGISTERED	DESIGN SUPERVISOR
STONAL ENGLY	

Approved By			
		TMT	
CONSTRUCTION MANAGER	DATE	DESIGNED BY TVW	[
SUPERVISOR	DATE	DRAWN BY	
MANAGER	DATE	CHECKED BY	0



PERMIT SUBMITTAL

RESTORATION DETAILS

FOREST HILLS WATER MAIN REHABILITATION

SHT B10 OF 16